

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of

**COOGAN et al.**

Atty. Ref.: 4662-37

Serial No. 10/540,914

Group: 1796

Filed: October 25, 2005

Examiner: McClendon

For: **AQUEOUS POLYURETHANE COMPOSITION FOR LOW GLOSS COATINGS**

\* \* \* \* \*

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**SECOND SUPPLEMENTAL DECLARATION OF RICHARD COOGAN**

Sir:

Pursuant to 37 CFR §1.132, the undersigned, **Richard COOGAN**, hereby declares and states that:

1. I am the same individual who executed prior Declarations on November 17, 2006 and May 29, 2007 in connection with the above-identified U.S. Patent Application Serial No. 10/540,914 filed on October 25, 2005, entitled "AQUEOUS POLYURETHANE COMPOSITIONS FOR LOW GLOSS COATINGS" (hereinafter "the '914 application") which, on information and belief were filed in the official record of the '914 application on December 20, 2006 and June 12, 2007, respectively (the entire contents of such prior Declarations being expressly incorporated hereinto by reference).

2. I understand that U.S. Patent No. 5,804,647 to Nachtkamp et al (hereinafter "the '647 patent") has been cited by the U.S. Patent Examiner to reject all pending claims in the '914 application.
3. Under my direction and control, the following compositions were formulated:

Composition A: Example 1 of the '647 patent.

Example 1 of the '647 patent comprises:

5.8 wt% of 2,2-dimethyl-1,3-propanediol

(component (ii) of the '914 application required as 0.8 to 4 wt.%)

0 wt% of at least one polyol containing crosslinkable groups having two or more isocyanate-reactive groups and a molecular weight from 500 to 6000 g/mol

(component (iv) of the '914 application required as 10 to 80 wt.%)

0 wt% of at least one polyol containing water-dispersing groups having two or more isocyanate-reactive groups and a molecular weight from 500 to 6000 g/mol

(component (iii) of the '914 application required as 0 to 30 wt.%, more preferably as 5 to 25 wt.%)

Composition B: 75 parts of Composition A plus  
23.5 parts Acrysol ASE 60 (Rohm & Haas)

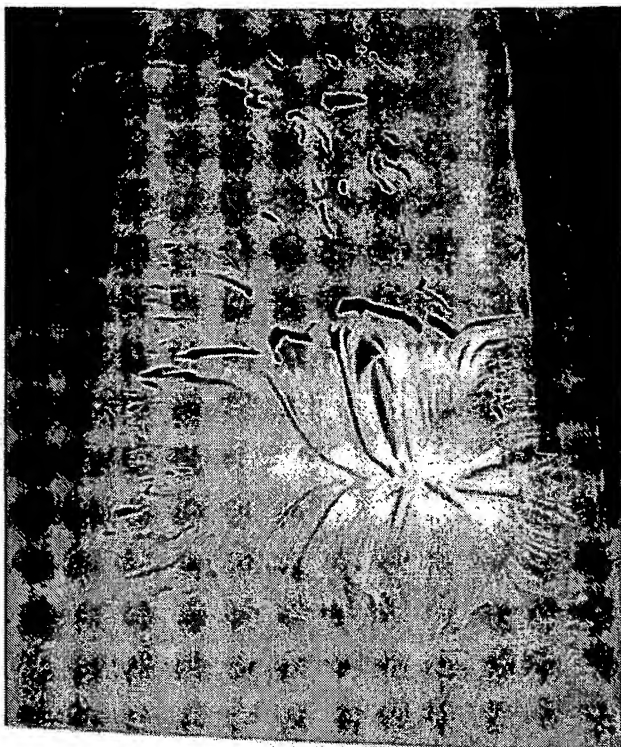
Composition C: Composition A plus 16 wt.% N-methylpyrrolidone (NMP) as co-solvent.

Composition D: Composition C plus 23.5 wt.% Acrysol ASE 60 (Rohm & Haas).

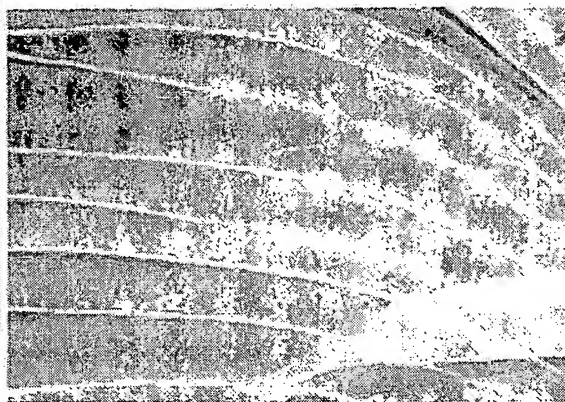
- Composition E: Composition A plus 20 wt.% reactive diluent (15wt.% butyl acrylate (BA) and 85 wt.% methyl methacrylate (MMA)) to show the effect of adding a reactive diluent.
- Composition F: 75 parts of composition E plus 23.5 Acrysol ASE 60 (Rohm & Haas)
- Composition G: Urethane resin made in accordance with Example 1 of the '914 application.

4. Gloss readings were made for each of Compositions A through G. Photographs of films of Compositions A through G were also recorded. The results are reported below:

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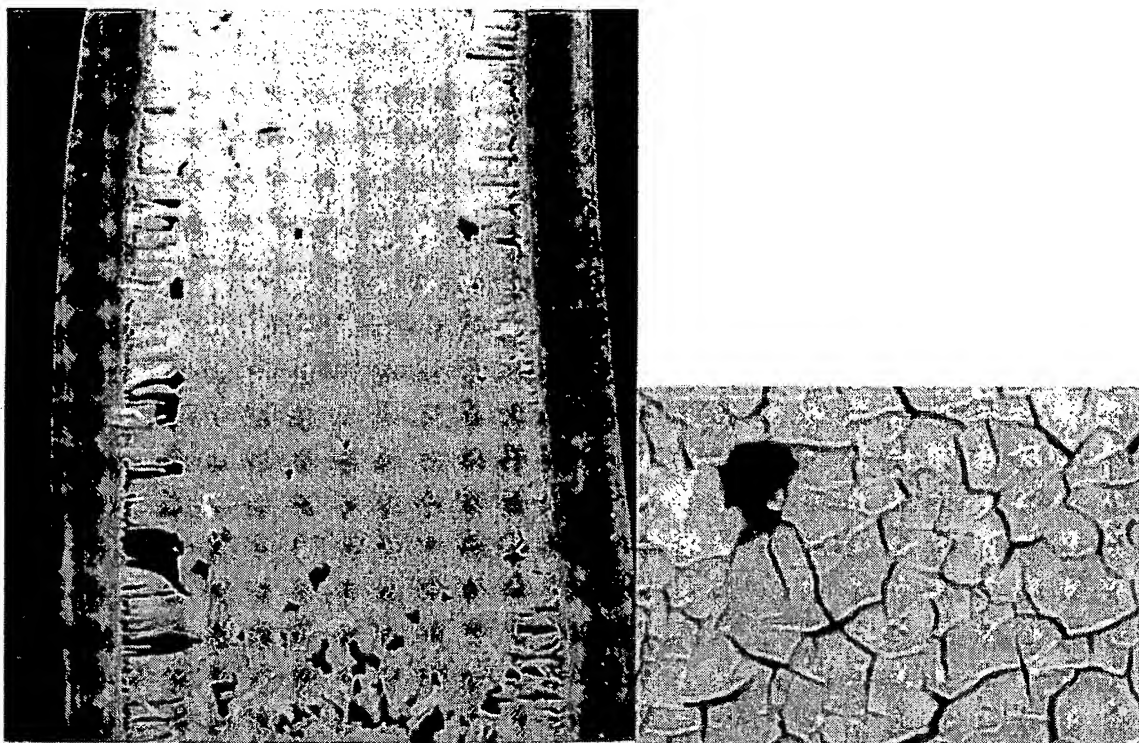


Composition A: Urethane  
Gloss at 60 degrees = 8



Close up View

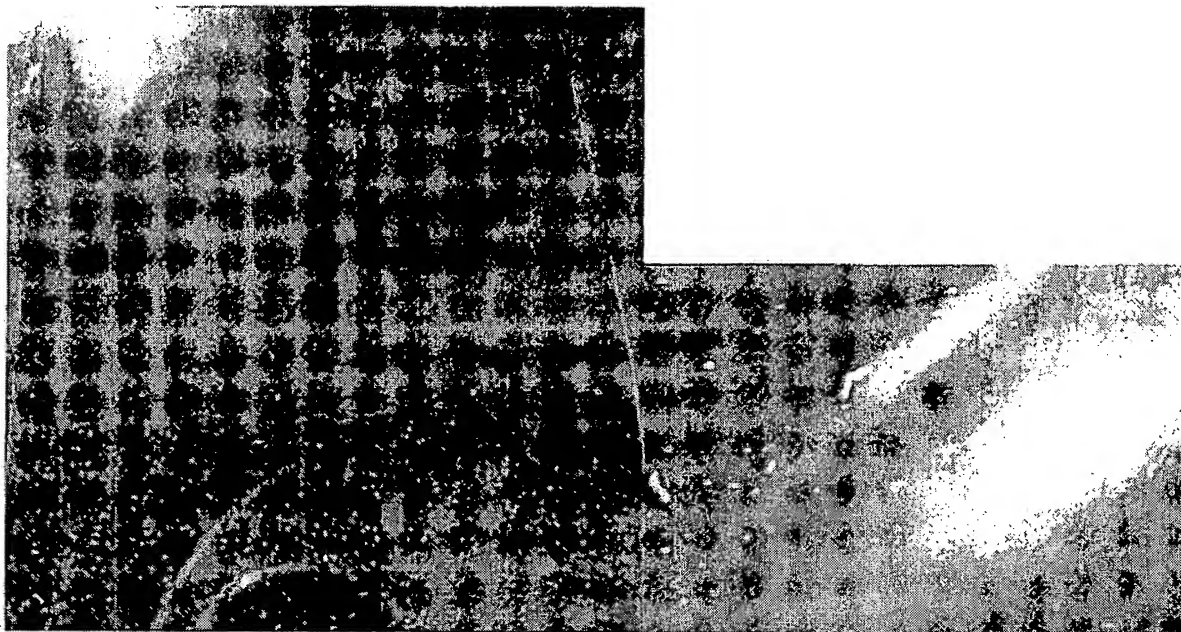
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Composition B. Urethane and Acrysol  
Gloss at 60 degrees = 6.6

Close Up View

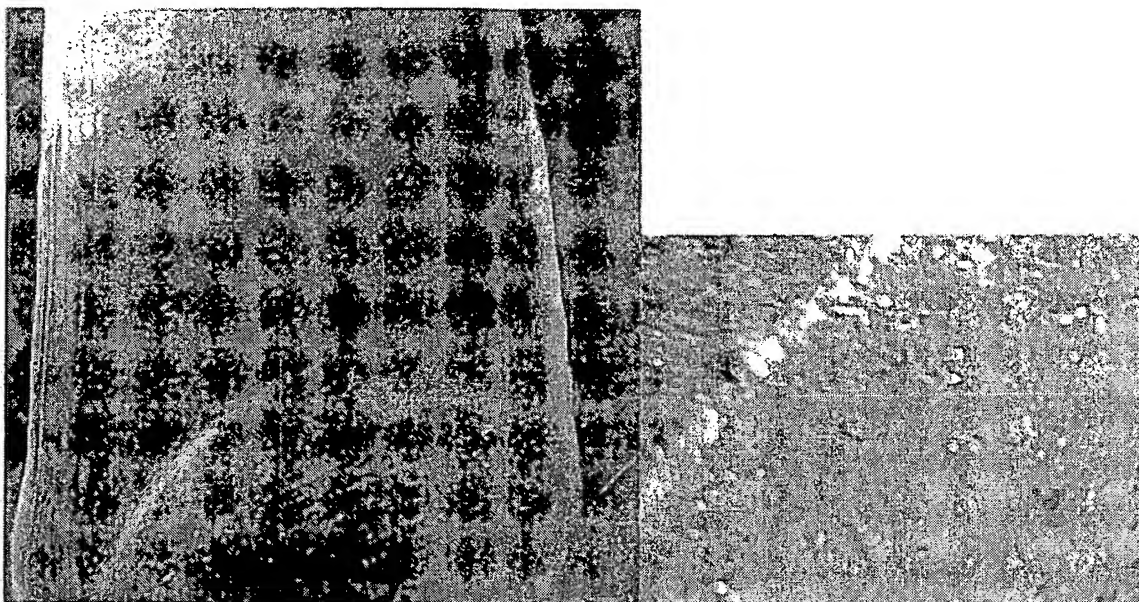
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Composition C: Urethane with 16% co-solvent  
Gloss at 60 degrees = 35

Close Up View

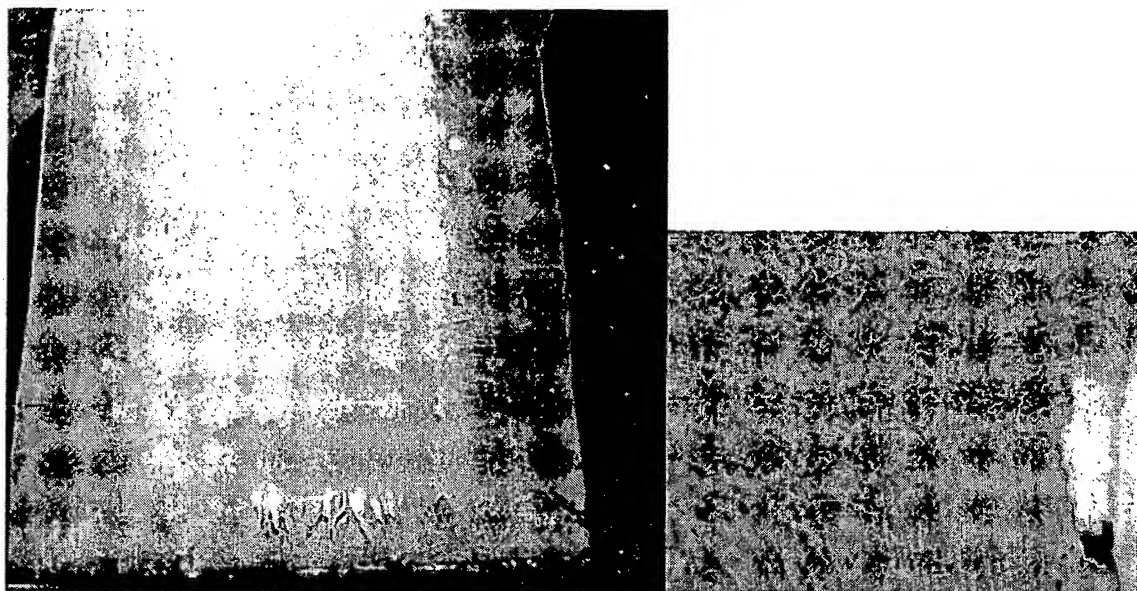
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Composition D: Urethane with 16% co-solvent  
and Acrysol  
Gloss at 60 degrees = 34.3

Close Up View

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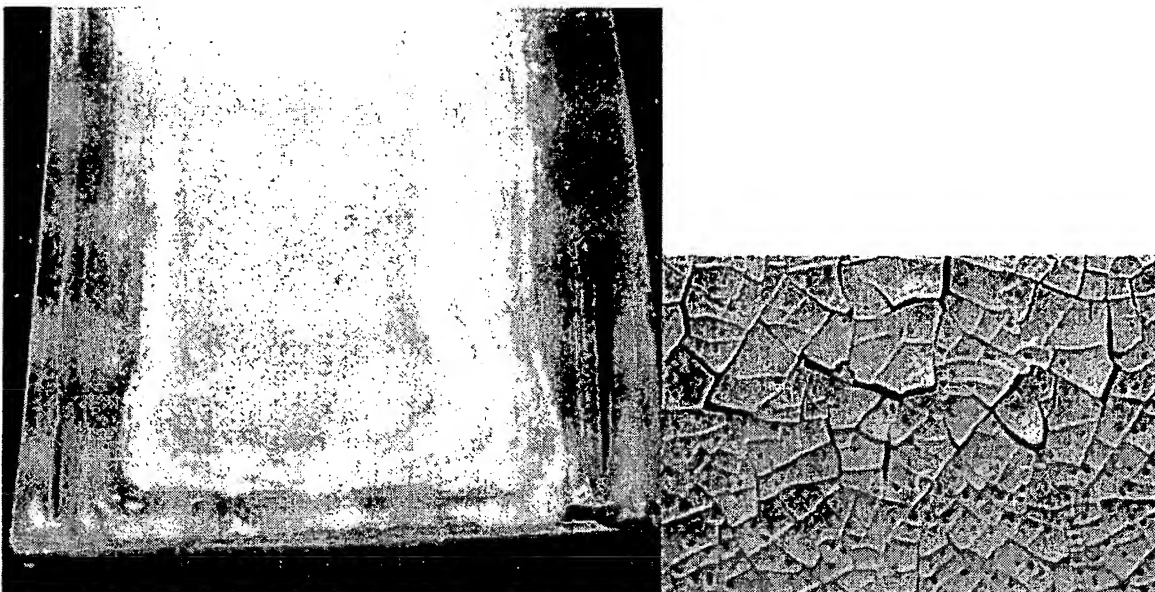


Composition E: Urethane with 20% reactive  
diluent [15% BA and 85% MMA]  
Gloss at 60 degrees = 4.5

Close Up View

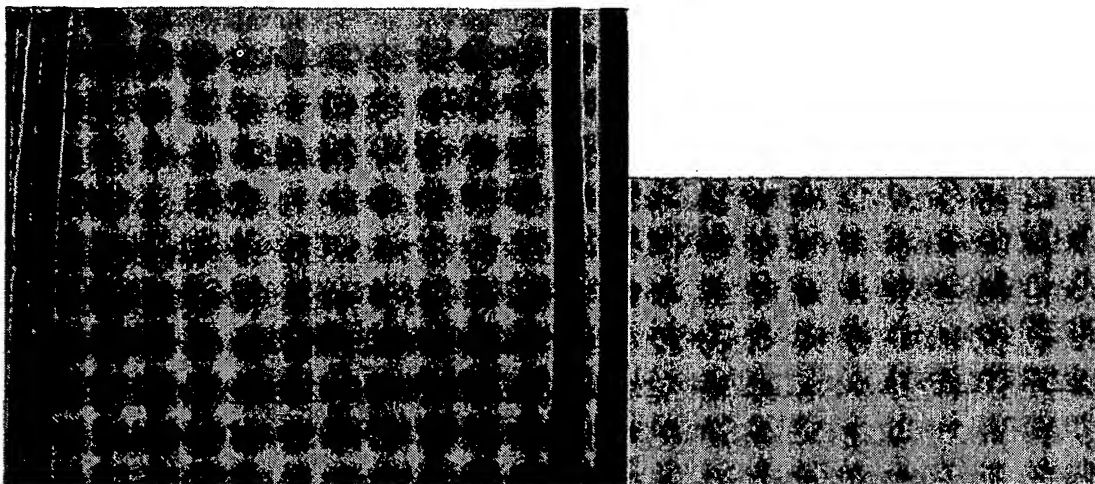


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Composition F: Urethane with 20% reactive  
diluent [15% BA and 85% MMA] and  
Acrysol  
Gloss at 60 degrees = 5

Close Up View



Composition G: Example 1 of '914 Application Close Up View  
Gloss at 60 degrees = 0.9

5. As can be seen from the evidence above, Compositions A, B, E & F showed substantial crystallization and thus lacked film forming capabilities. The films have a low gloss measurement however this is due to cracking and crystallization of the films i.e. the films were not uniform or even a single continuous film.
6. The only way composition A could be made to be film forming (composition C and D) was to add a solvent (N-methylpyrrolidone) which acts as a co-solvent and assists with film formation. As soon as a film was successfully formed the gloss was increased. The '647 patent teaches that solvents should be removed by distillation.
7. As can be seen from compositions B, D and F the addition of Acrysol did not improve film formation nor the gloss.

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8. As can be seen from compositions E & F the addition of a reactive diluent did not improve film formation nor the gloss.
9. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully Submitted,

April 28, 2008  
Date Signed

Richard Coogan  
Richard COOGAN